

## ABSTRACT

A system for automatic detection of defects in railroad wheels, a system that is stationary and is installed in extended intervals in the rails uses stationary acoustical/vibration sensors installed at intervals in the rails. Rail segments associated with the detectors are acoustically isolated. The sensors acquire the sounds and vibrations generated by the wheels rolling over the rails. Signal analyzers identify rail defects from intensity vs., frequency distributions of acoustical spectra. Such spectra reflect the condition of the wheels and change their intensity vs. frequency distributions when the wheels pass the sensors installed in the rails. The acquired information on the condition of the wheels is transmitted to a central location. Any defective wheel is identified and marked for repair or replacement.